

THE CHI-SQUARED TEST FOR INDEPENDENCE

CASIO CFX-9850GB PLUS INSTRUCTIONS

VISIT...

200 Hungarian males over the age of forty had their blood pressure taken and were categorised as having either severe, mild or no hypertension. Also noted was the amount of smoking they undertook - it was categorised as none, moderate and heavy. The data collected is summarised in the table below. It is wondered if hypertension and amount of smoking are independent at the 0.05 level of significance.

Degree of hypertension	Amount of smoking		
	None	Moderate	Heavy
1	10	14	20
2	20	18	31
3	40	22	25

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Matrix	:	None
Mat A	:	None
Mat B	:	None
Mat C	:	None
Mat D	:	None
Mat E	:	None
Mat F	:	None

Step 2: Highlight **Mat A** and press **3** **EXE** **3** **EXE** to create a 3×3 matrix.

Matrix	:	3x3
Mat A	:	None
Mat B	:	None
Mat C	:	None
Mat D	:	None
Mat E	:	None
Mat F	:	None

Step 3: Enter the data from the table above as shown.

Press **MENU** to return to the main menu when you are done.

A	1	2	3
1	10	14	20
2	20	18	31
3	40	22	25

Step 4: Choose the **Stat** menu from the main menu.

Press **F3** to select the **TEST** menu, then **F3** to select **CHI**.

List 1	List 2	List 3	List 4
1			
2			
3			
4			
5			

Step 5: Set up the screen as shown.

Highlight **Execute** and press **F1** to perform the test.

χ^2 Test
Observed: Mat A
Execute

Since the p -value is less than 0.05, we reject the hypothesis that degree of hypertension and amount of smoking are independent.

Press **MENU** to return to the main menu. Select **Run**. You can display the expected frequencies by pressing **OPTN** **F2** (Mat) **F1** (Mat) **SHIFT** **(-)** (Ans).

χ^2 Test
$\chi^2=9.5758$
$p=0.048212$
$df=4$
Expected=Mat Ans

Ans	1	2	3
1	15.4	11.88	15.72
2	24.15	18.63	25.22
3	30.45	23.49	33.06